JAVASCRIPT SCOPES & CLOSURES

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SCOPES

The cope is the current context of execution where your variables and expressions can be referenced or can be visible. We have 4 scopes:

- Global scope
- Function scope
- Block scope
- Module scope

GLOBAL SCOPE

Your variables and expressions can be accessed from anywhere. Tiny difference between var and let and const here is that var will be accessible from the window object.

FUNCTION SCOPE

A variable declared inside of a function has function scope meaning it can only be accessed from within that function.

Var uses function scope.

BLOCK SCOPE

Let and const variables use block scope.

A variable initiated within a block { } can’t be accessed outside of this block.

MODULE

You can divide your programs in modules in js meaning you can split it up in diifferent parts

MODULE SCOPE

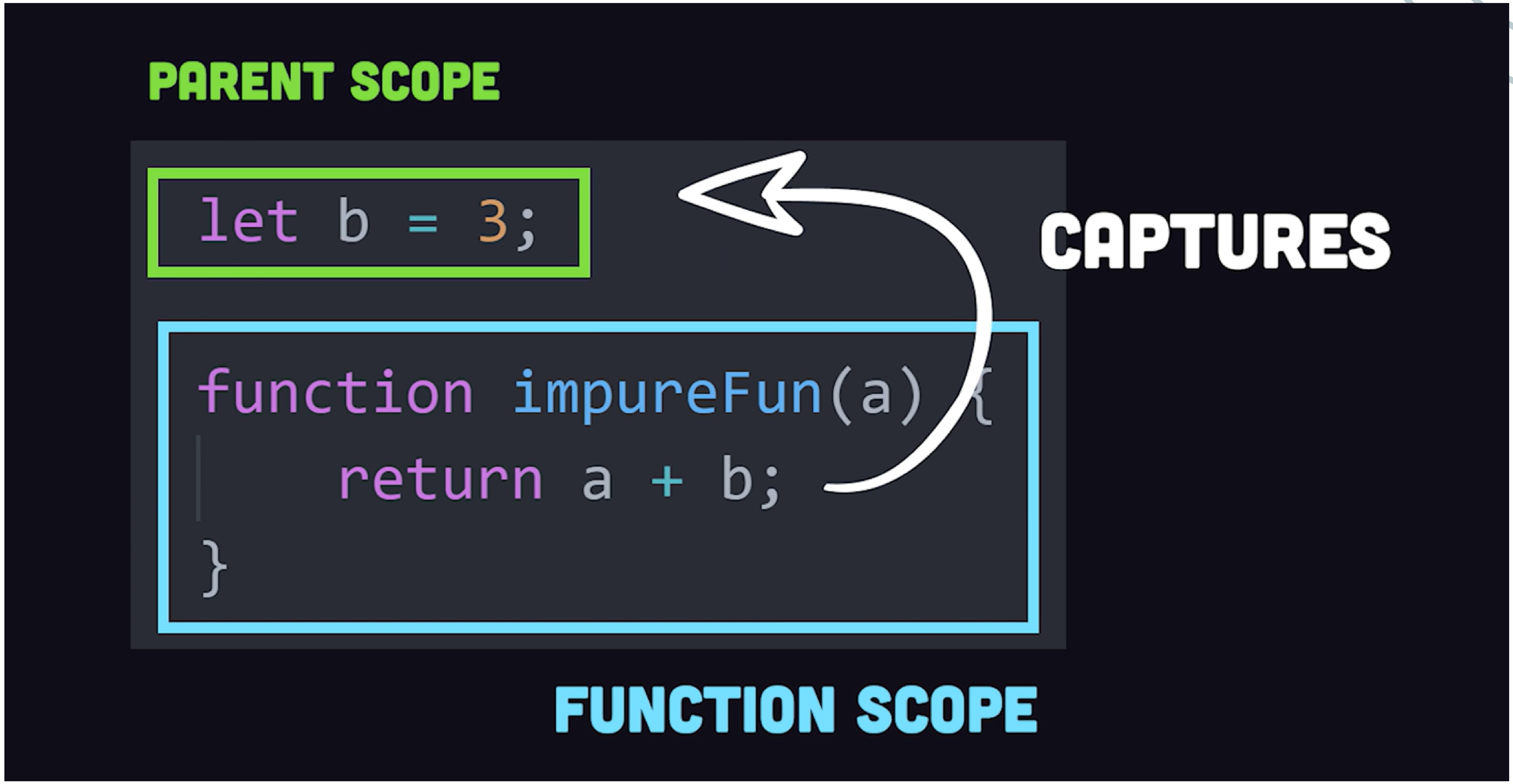
In JS modules have a separated scope from the global scope meaning variables functions or other expressions cannot be accessed from the global scope unless explicitly exported.

CLOSURES

Definition

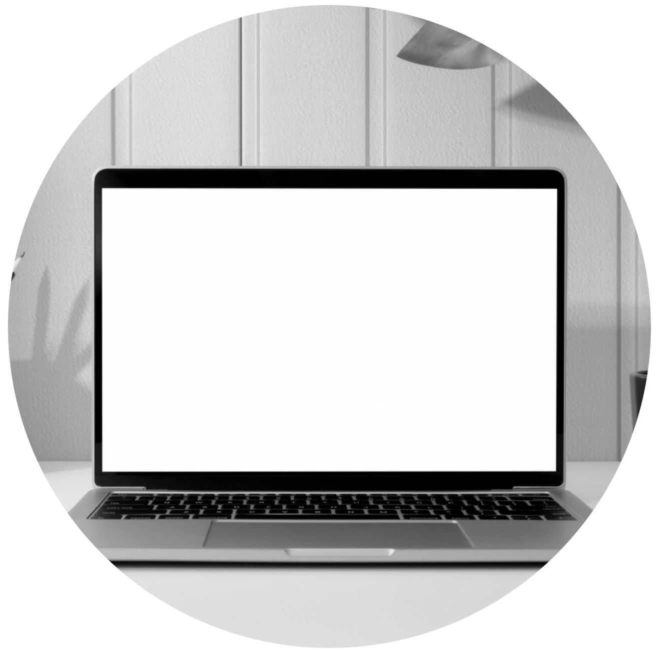
A closure is the combination of a function bundled together (enclosed) with references to its surrounding state (the lexical environment).

Meaning you get acces to an outer function scope from an inner function.



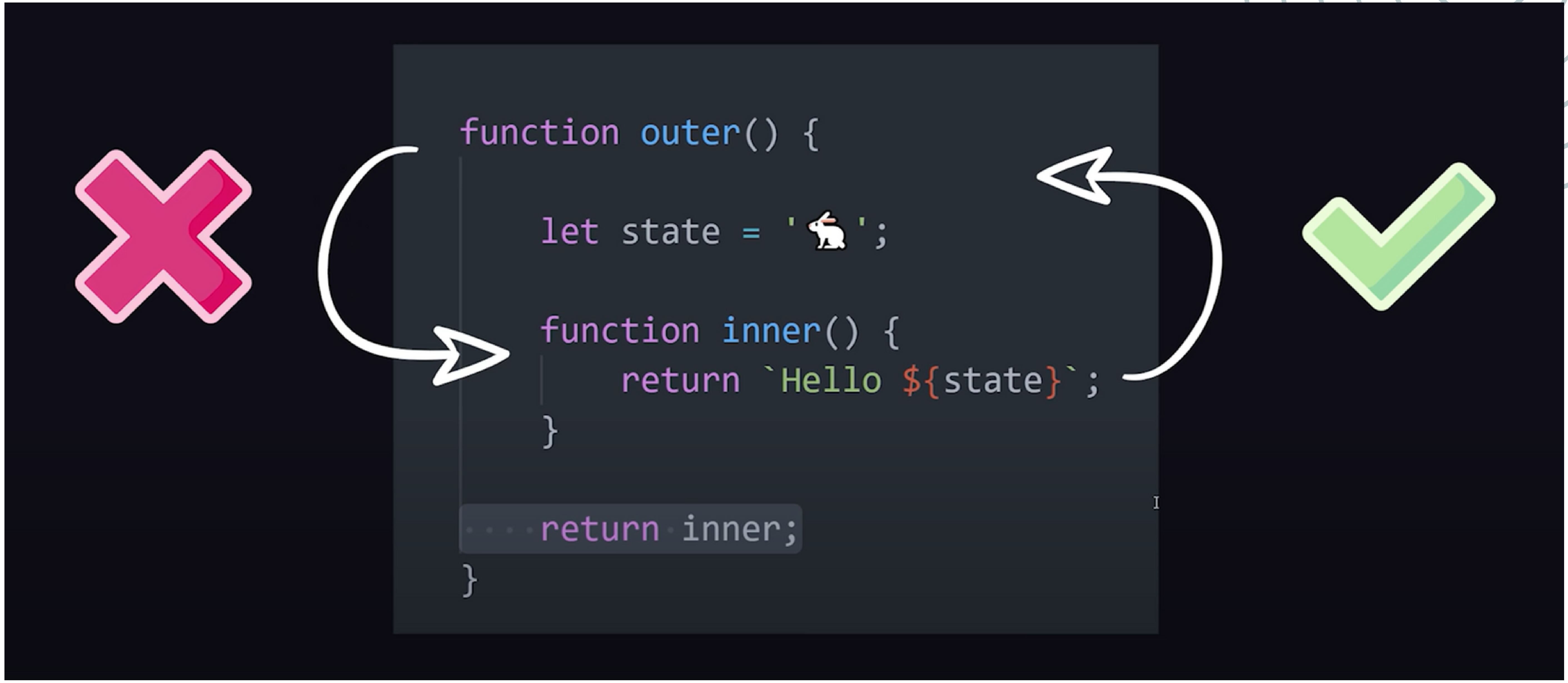
```
let b = 3;

function impureFun(a) {
    return a + b;
}
```

WHY USE CLOSURES



Data Encapsulation

To prevent data leaking where it's not needed



```
function outer() {

    let state = '🐇';

    function inner() {
        return `Hello ${state}`;
    }

    return inner;
}
```

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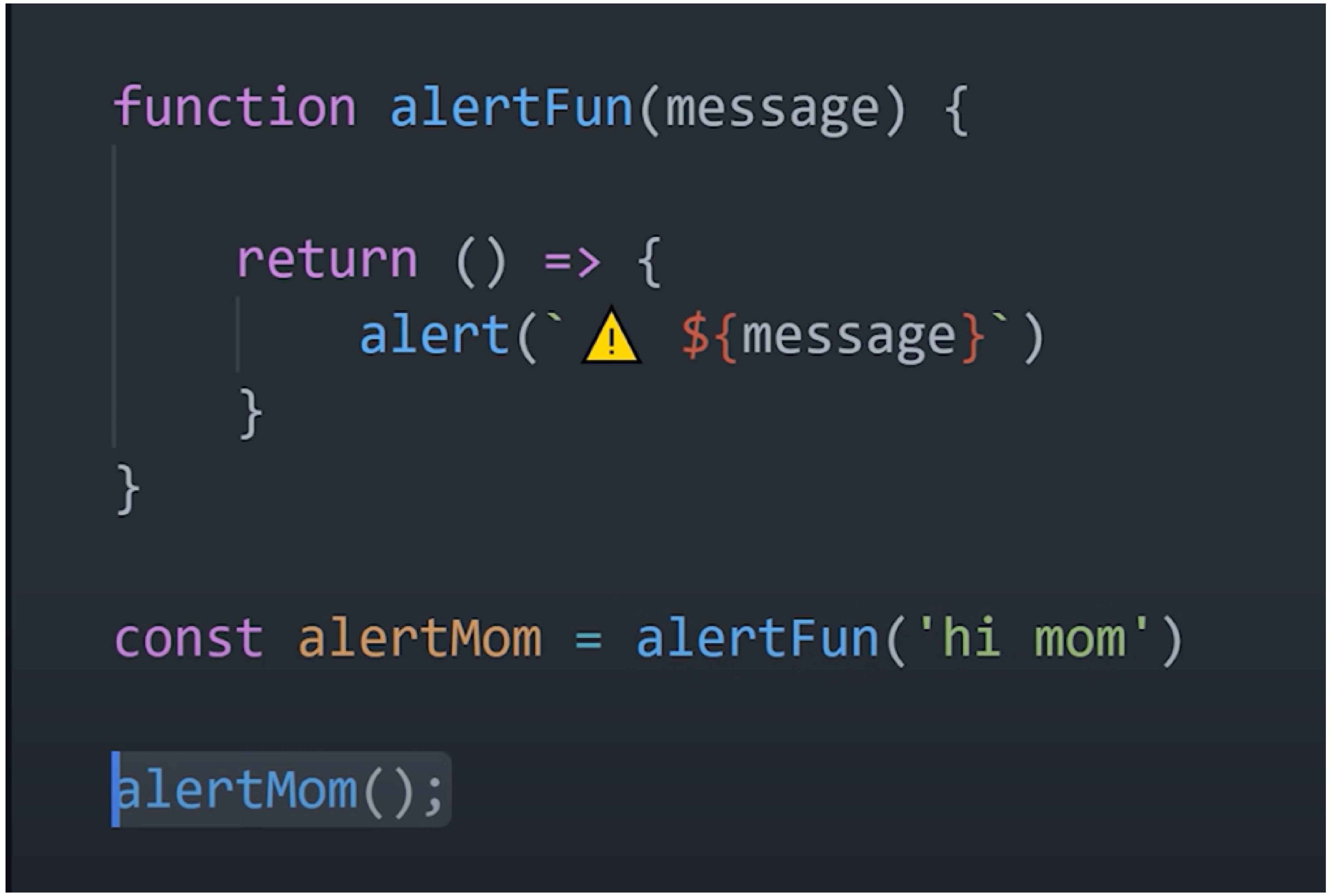
Function Factory

A function that takes an argument and then returns a brand new function.
Which can then be passed along other functions that expect a callback.



```
function alertFun(message) {

    return () => {
        alert(`⚠ ${message}`)
    }
}

const alertMom = alertFun('hi mom')

alertMom();
```

CONCLUSION

GO DEEPER

Javascript is a pretty fun programming language so try go deeper and learn other concepts like:

- Call-stack
- Heap-memory
- Function Factories
- Hoisting
- ...

THANK YOU

Have any question?

All the links and all the code used can be found here: https://github.com/Pierremarien/js-scopes-closures

LINKS

- https://developer.mozilla.org/en-US/docs/Glossary/Scope
- https://developer.mozilla.org/en-US/docs/Web/JavaScript/Closures
- https://www.w3schools.com/js/js_scope.asp
- https://dev.to/mingt/javascript-introduction-to-scope-function-scope-block-scope-d11#:~:text=A%20block%20scope%20is%20the,only%20within%20the%20corresponding%20block.
- https://www.w3schools.com/js/js_function_closures.asp)
- https://www.showwcase.com/show/27294/module-scope